

**Part 1:** **TITLE, AUTHORS, APPROVALS, etc**

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| **Code assigned:** | **2020.012M** |  |
| **Short title:** Create 16 new species and abolish one species in the genus *Orthobunyavirus* (*Bunyavirales*: *Peribunyaviridae*) | | |
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| Holly R. Hughes |

**List the ICTV Study Group(s) that have seen this proposal**

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| ICTV *Peribunyaviridae* Study Group |

**ICTV study group comments and response of proposer**

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| The ICTV *Peribunyaviridae* Study Group approves of the proposal. |

**Submission dates**

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| Date first submitted to SC Chair | July 31, 2020 |
| Date of this revision (if different to above) |  |

**ICTV-EC comments and response of the proposer**

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**Part 3:** **TAXONOMIC PROPOSAL**

**Name of accompanying Excel module**

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| 2020.012M.R.Orthobunyavirus\_16new\_sp\_abolish\_1sp.xlsx |

**Abstract**

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| This proposal creates 16 new species and abolishes one species in the genus *Orthobunyavirus*. The viruses evaluated were previously recognized as unclassified orthobunyaviruses or species that have not been evaluated with recently described speciation demarcation criterion. |

**Text of proposal**

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| |  | | --- | | The genus *Orthobunyavirus* is the largest genus in the family *Peribunyaviridae* with currently 88 recognized species. Recent advances in sequencing analysis have identified several related but unclassified viruses that may represent unique viral species. Additionally, several recognized species that had been established using serological speciation methods have not yet been evaluated with the current speciation demarcation criterion of amino acid identity of <96% in the L protein. This proposal presents the evaluation of the current species *Patois orthobunyavirus, Zegla orthobunyavirus, Guama orthobunyavirus, Tete orthobunyavirus,* and *Caraparu orthobunyavirus* in addition to nine related, but unclassified, orthobunyaviruses using current speciation demarcation criterion (Figure 1).  Based on this analysis, we propose the following new species: *Abras orthobunyavirus, Ananindeua orthobunyavirus, Apeu orthobunyavirus, Brazoran orthobunyavirus, Bruconha orthobunyavirus, Buffalo Creek orthobunyavirus, Gan Gan orthobunyavirus, Mahogany Hammock orthobunyavirus, Mapputta orthobunyavirus, Maprik orthobunyavirus, Matruh orthobunyavirus, Moju orthobunyavirus, Oyo orthobunyavirus, Sedlec orthobunyavirus, Shark River orthobunyavirus,* and *Triniti orthobunyavirus.* Additionally, we have determined that *Zegla orthobunyavirus* should be abolished. | |  | |

**Supporting evidence**

**Figure 1. Phylogenetic inference of the orthobunyavirus L protein.** The L amino acids were aligned using ClustalW and phylogenies inferred using the JTT+G model in MEGA7. Bootstrap support values are shown on each branch as a percent of 500 replicates. Scale bar depicts amino acid substitutions per site. Branches labeled with blue circles represent current species of the genus *Orthobunyavirus.* Branches labeled with black circles represent proposed new species. The *Zegla orthobunyavirus* branch is labeled with a red circle – this species is proposed to be abolished. Branches are labeled with virus names and GenBank accession numbers.

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**Table 1. Amino acid identity of the L protein.** The open reading frame of the L segment was translated into amino acids, aligned by ClustalW, and p-distances were calculated in MEGA7 by complete deletion of missing data. Viruses with less than 96% identity are considered to represent unique species. Highlighted blue are reference orthobunyaviruses that have previously been evaluated with current speciation demarcation criteria. Highlighted green are orthobunyaviruses classified with previous, serological criteria. Remaining white are currently related, unclassified orthobunyaviruses. Cells highlighted red have identities greater than 96% and are therefore considered to represent the same virus species.

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Alajuela\_L\_KM272186 | Bunyamwera\_L\_X14383 | Cache\_Valley\_L\_KC436106 | Wyeomyia\_L\_JN572080 | La\_Crosse\_L\_\_AF528165 | Snow shoe\_hare\_EU203678 | Lukuni\_L\_KP792672 | Tacaiuma\_L\_MF497778 | Oropouche\_L\_KP691603 | Iquitos\_L\_KJ866388 | Simbu\_L\_HE795108 | Akabane\_L\_KY381282 | Schmallenberg\_L\_KC355457 | Cat\_que\_L\_JQ675598 | manzanilla\_L\_KF697150 | Brazoran\_L\_KC854418 | Guama\_L\_KP792666 | Ananindeua\_L\_MG821226 | Mahogany\_hammock\_L\_KP835520 | Moju\_L\_KP792675 | Mapputta\_L\_KJ481923 | Maprik\_L\_KJ481926 | Buffalo\_Creek\_L\_KJ481929 | Gan\_Gan\_L\_KR013232 | Trubanaman\_L\_KR013235 | Oyo\_L\_HM639780 | Sedlec\_L\_MH484327 | Tete\_L\_KM972719 | Bahig\_L\_KP92654 | Matruh\_L\_KP92693 | Triniti\_L\_MG792207 | Patois\_63A49\_L\_MH017277 | Abras\_L\_MH017275 | Babahoya\_L\_MH017276 | Pahayokee\_L | Shark\_River\_L\_MH017278 | Zegla\_L\_MH017279 | Caraparu\_L\_KF254776 | Apeu\_L\_MG029269 | Bruconha\_L\_KM280929 | El\_Huayo\_L\_KT334540 |
| Alajuela\_L\_KM272186 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Bunyamwera\_L\_X14383 | 51 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Cache\_Valley\_L\_KC436106 | 51 | 83 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Wyeomyia\_L\_JN572080 | 51 | 68 | 69 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| La\_Crosse\_L\_\_AF528165 | 56 | 58 | 58 | 57 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| snowshoe\_hare\_EU203678 | 56 | 58 | 57 | 57 | 95 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Lukuni\_L\_KP792672 | 49 | 51 | 52 | 51 | 53 | 53 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Tacaiuma\_L\_MF497778 | 48 | 50 | 50 | 51 | 53 | 53 | 59 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Oropouche\_L\_KP691603 | 50 | 52 | 52 | 51 | 54 | 53 | 47 | 49 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Iquitos\_L\_KJ866388 | 50 | 52 | 52 | 51 | 54 | 53 | 48 | 49 | 99 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Simbu\_L\_HE795108 | 48 | 50 | 50 | 49 | 51 | 51 | 47 | 48 | 60 | 60 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Akabane\_L\_KY381282 | 49 | 51 | 51 | 50 | 52 | 52 | 48 | 49 | 60 | 60 | 72 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Schmallenberg\_L\_KC355457 | 49 | 50 | 50 | 50 | 52 | 52 | 47 | 49 | 60 | 60 | 71 | 72 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Cat\_que\_L\_JQ675598 | 49 | 51 | 50 | 51 | 52 | 52 | 48 | 48 | 69 | 69 | 60 | 60 | 59 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| manzanilla\_L\_KF697150 | 49 | 51 | 50 | 51 | 53 | 52 | 48 | 48 | 68 | 68 | 60 | 60 | 59 | 90 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Brazoran\_L\_KC854418 | 49 | 51 | 51 | 51 | 53 | 53 | 46 | 49 | 54 | 54 | 52 | 51 | 52 | 54 | 54 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Guama\_L\_KP792666 | 49 | 52 | 51 | 51 | 52 | 53 | 46 | 50 | 54 | 54 | 52 | 52 | 52 | 54 | 54 | 66 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Ananindeua\_L\_MG821226 | 49 | 52 | 52 | 51 | 53 | 53 | 47 | 49 | 54 | 54 | 52 | 52 | 52 | 54 | 54 | 66 | 88 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Mahogany\_hammock\_L\_KP835520 | 49 | 52 | 51 | 51 | 52 | 53 | 47 | 49 | 54 | 54 | 52 | 51 | 52 | 55 | 55 | 66 | 89 | 86 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Moju\_L\_KP792675 | 49 | 51 | 51 | 51 | 52 | 53 | 46 | 50 | 54 | 54 | 52 | 52 | 52 | 54 | 54 | 66 | 95 | 88 | 89 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Mapputta\_L\_KJ481923 | 50 | 51 | 50 | 51 | 52 | 52 | 47 | 48 | 48 | 48 | 48 | 49 | 48 | 49 | 49 | 49 | 49 | 49 | 49 | 49 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Maprik\_L\_KJ481926 | 49 | 51 | 51 | 51 | 53 | 52 | 48 | 49 | 50 | 50 | 48 | 50 | 49 | 49 | 49 | 50 | 50 | 49 | 51 | 50 | 65 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Buffalo\_Creek\_L\_KJ481929 | 47 | 50 | 51 | 50 | 52 | 52 | 47 | 47 | 48 | 48 | 47 | 47 | 47 | 47 | 47 | 48 | 48 | 48 | 49 | 48 | 61 | 63 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Gan\_Gan\_L\_KR013232 | 49 | 51 | 51 | 51 | 53 | 53 | 48 | 49 | 49 | 49 | 48 | 49 | 48 | 50 | 49 | 49 | 49 | 49 | 50 | 50 | 64 | 88 | 62 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Trubanaman\_L\_KR013235 | 47 | 50 | 50 | 50 | 52 | 52 | 47 | 47 | 48 | 48 | 47 | 47 | 47 | 47 | 47 | 48 | 48 | 47 | 49 | 48 | 61 | 63 | 99 | 62 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Oyo\_L\_HM639780 | 47 | 50 | 50 | 49 | 51 | 51 | 47 | 48 | 52 | 52 | 51 | 50 | 51 | 51 | 51 | 53 | 52 | 52 | 53 | 52 | 48 | 48 | 48 | 48 | 48 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Sedlec\_L\_MH484327 | 50 | 52 | 51 | 51 | 53 | 53 | 48 | 49 | 59 | 59 | 55 | 54 | 54 | 59 | 58 | 55 | 55 | 54 | 55 | 54 | 49 | 49 | 49 | 49 | 49 | 52 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Tete\_L\_KM972719 | 49 | 53 | 53 | 51 | 52 | 52 | 48 | 49 | 54 | 54 | 53 | 53 | 52 | 54 | 53 | 54 | 55 | 55 | 54 | 54 | 49 | 51 | 49 | 51 | 49 | 60 | 54 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Bahig\_L\_KP92654 | 50 | 52 | 52 | 51 | 52 | 52 | 48 | 49 | 55 | 55 | 53 | 54 | 53 | 54 | 53 | 55 | 54 | 55 | 54 | 54 | 49 | 51 | 49 | 50 | 49 | 60 | 54 | 85 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Matruh\_L\_KP92693 | 50 | 53 | 52 | 51 | 52 | 52 | 48 | 49 | 55 | 55 | 53 | 54 | 53 | 54 | 54 | 55 | 55 | 55 | 54 | 54 | 50 | 51 | 49 | 50 | 49 | 60 | 55 | 85 | 99 |  |  |  |  |  |  |  |  |  |  |  |  |
| Triniti\_L\_MG792207 | 49 | 52 | 52 | 52 | 55 | 55 | 62 | 61 | 49 | 49 | 50 | 50 | 49 | 50 | 50 | 49 | 49 | 49 | 49 | 49 | 49 | 50 | 50 | 50 | 50 | 49 | 51 | 51 | 51 | 51 |  |  |  |  |  |  |  |  |  |  |  |
| Patois\_63A49\_L\_MH017277 | 49 | 53 | 52 | 51 | 53 | 53 | 48 | 49 | 55 | 55 | 52 | 52 | 52 | 54 | 54 | 66 | 68 | 67 | 68 | 67 | 50 | 50 | 49 | 50 | 49 | 53 | 55 | 55 | 55 | 55 | 50 |  |  |  |  |  |  |  |  |  |  |
| Abras\_L\_MH017275 | 48 | 51 | 51 | 51 | 52 | 52 | 47 | 50 | 55 | 55 | 52 | 52 | 51 | 53 | 53 | 65 | 67 | 65 | 67 | 67 | 49 | 50 | 48 | 50 | 48 | 52 | 54 | 54 | 55 | 55 | 49 | 86 |  |  |  |  |  |  |  |  |  |
| Babahoya\_L\_MH017276 | 48 | 51 | 52 | 51 | 52 | 52 | 47 | 50 | 55 | 55 | 52 | 52 | 51 | 53 | 53 | 65 | 67 | 65 | 67 | 67 | 49 | 50 | 48 | 50 | 48 | 53 | 54 | 55 | 55 | 55 | 49 | 85 | 99 |  |  |  |  |  |  |  |  |
| Pahayokee\_L | 49 | 52 | 52 | 51 | 53 | 53 | 48 | 49 | 55 | 55 | 52 | 52 | 51 | 53 | 54 | 66 | 67 | 67 | 68 | 67 | 50 | 50 | 49 | 51 | 49 | 53 | 54 | 55 | 54 | 55 | 49 | 95 | 85 | 85 |  |  |  |  |  |  |  |
| Shark\_River\_L\_MH017278 | 49 | 52 | 52 | 51 | 53 | 53 | 48 | 49 | 55 | 55 | 52 | 52 | 51 | 53 | 54 | 66 | 67 | 67 | 68 | 67 | 50 | 50 | 49 | 51 | 49 | 53 | 54 | 55 | 54 | 55 | 49 | 95 | 85 | 85 | 100 |  |  |  |  |  |  |
| Zegla\_L\_MH017279 | 49 | 52 | 52 | 51 | 53 | 53 | 48 | 50 | 55 | 55 | 52 | 52 | 51 | 54 | 54 | 66 | 68 | 67 | 68 | 67 | 50 | 50 | 49 | 50 | 49 | 53 | 55 | 55 | 55 | 55 | 50 | 99 | 86 | 86 | 95 | 95 |  |  |  |  |  |
| Caraparu\_L\_KF254776 | 50 | 53 | 53 | 52 | 53 | 53 | 47 | 51 | 55 | 55 | 52 | 53 | 52 | 55 | 55 | 67 | 72 | 71 | 73 | 72 | 49 | 50 | 49 | 49 | 49 | 54 | 55 | 55 | 55 | 55 | 50 | 67 | 68 | 68 | 67 | 67 | 67 |  |  |  |  |
| Apeu\_L\_MG029269 | 50 | 53 | 52 | 51 | 53 | 53 | 49 | 50 | 55 | 55 | 51 | 52 | 53 | 54 | 54 | 68 | 71 | 69 | 71 | 71 | 50 | 50 | 50 | 50 | 50 | 52 | 55 | 55 | 55 | 55 | 51 | 69 | 68 | 68 | 69 | 69 | 69 | 80 |  |  |  |
| Bruconha\_L\_KM280929 | 50 | 53 | 53 | 52 | 53 | 53 | 47 | 51 | 55 | 56 | 52 | 52 | 53 | 55 | 55 | 67 | 72 | 70 | 72 | 72 | 50 | 50 | 49 | 50 | 49 | 54 | 55 | 54 | 55 | 55 | 51 | 68 | 68 | 68 | 68 | 68 | 68 | 90 | 80 |  |  |
| El\_Huayo\_L\_KT334540 | 49 | 51 | 51 | 51 | 52 | 53 | 47 | 49 | 54 | 54 | 51 | 51 | 52 | 53 | 54 | 66 | 91 | 90 | 88 | 91 | 49 | 50 | 48 | 49 | 48 | 52 | 54 | 55 | 54 | 55 | 49 | 67 | 66 | 66 | 67 | 67 | 67 | 72 | 71 | 72 |  |
| Itaya\_L\_KM092512 | 50 | 53 | 53 | 52 | 53 | 53 | 47 | 51 | 55 | 55 | 52 | 53 | 51 | 55 | 55 | 67 | 72 | 71 | 72 | 72 | 49 | 50 | 49 | 49 | 49 | 54 | 55 | 55 | 55 | 55 | 50 | 68 | 68 | 68 | 68 | 68 | 68 | 97 | 80 | 90 | 72 |